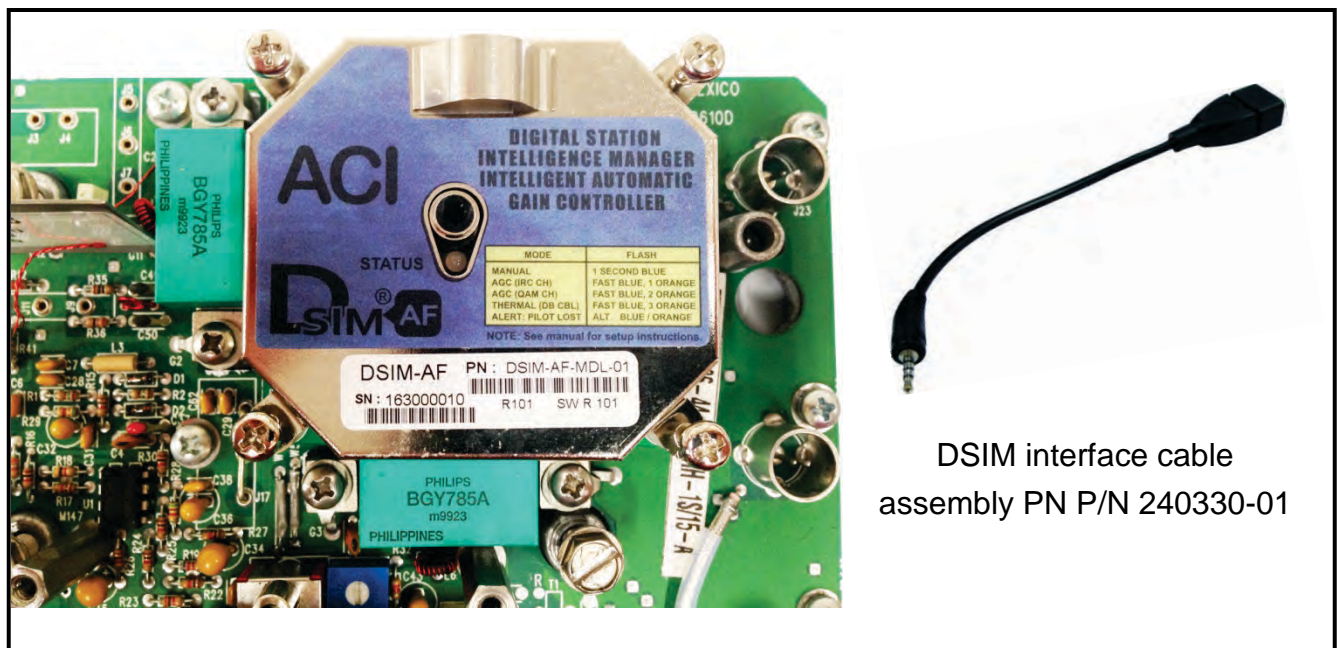


# ACI

**DSIM-AF**  
**Installation Guide**  
**Revision A**

## 1. Quick Start Instructions for Single Pilot AGC Operation

1. Remove the RF module cover and install the DSIM-AF AGC module into the amplifier.
2. Turn the ALC switch to the on position.
3. Attach cable and controller to the DSIM-AF, the controller light should be solid blue indicating manual mode (if not press mode button until it is).
4. Press the '+' button on the controller until the output levels have maxed out.
5. The press the '-' button on the controller until the output level decrease by, 5dB at 750MHz, for outside temperature levels 40 to 60°F.
6. Check and set amplifier station levels.
7. Replace the RF module cover.
8. Press mode button once. The controller light will flash blue and red for approximately 45 seconds.
9. When done the controller light will have a half second blue blink indicating that the DSIM-AF is in AGC mode.
10. Remove the DSIM-AF interface cable from the amplifier, and the DSIM-AF is all set.



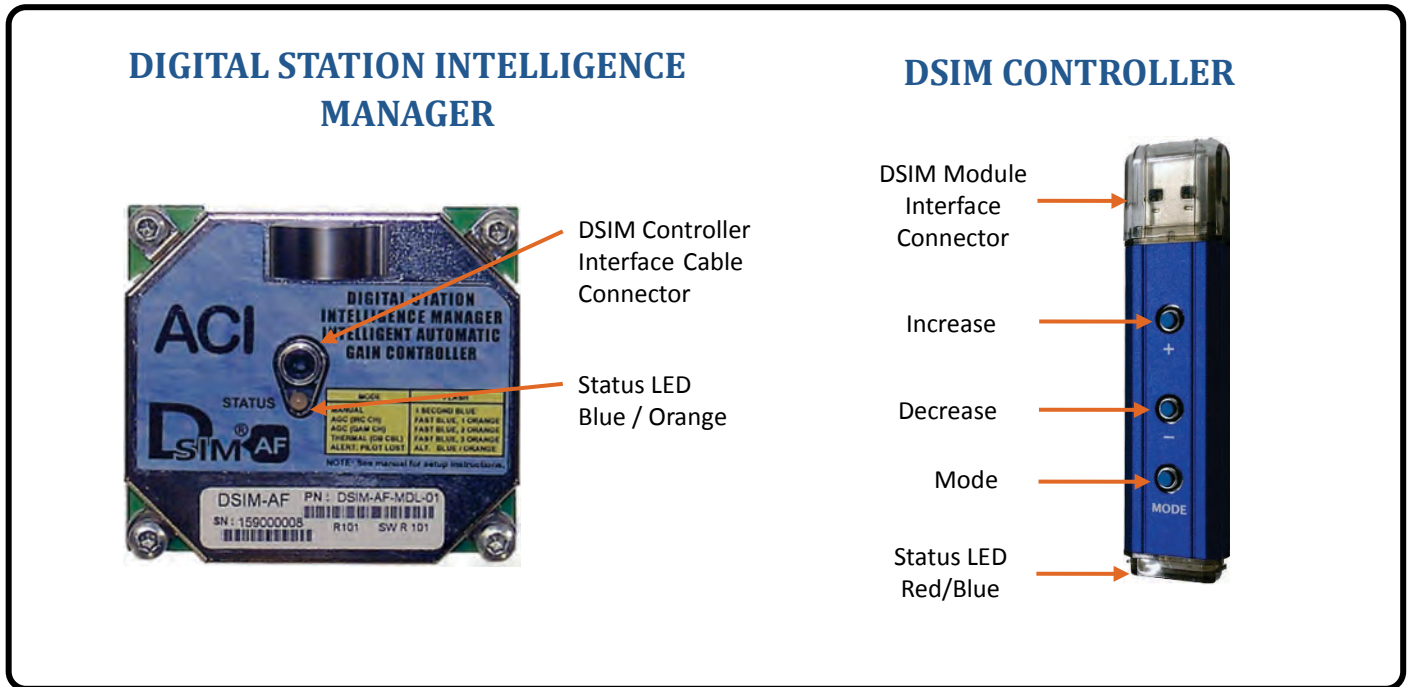
DSIM interface cable  
assembly PN P/N 240330-01

**Controller Connection to DSIM**  
(Shown with faceplate cover removed for clarity)

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## 2. DSIM-AF AGC Module & DSIM Controller Overview



The Digital Station Intelligence Manager (DSIM) product line is the next generation of automatic gain control modules that provides the outside plant maintenance team with station diagnostic tools that are unprecedented in the industry. The DSIM-AF AGC module is agile that allows the program settings to be modified at any time to change the pilot channel number and type from analog to digital or to change the operational mode into the SPAGC, Thermal AGC or manual modes of operation. Having this flexibility to reprogram the DSIM-AF modules is a huge cost savings when doing system pilot channel modifications over the fixed SPAGC or T-bode modules since only the program settings need to be changed instead of having to change out the entire AGC fixed module.

The DSIM-AF module can be programmed to operate as a single pilot AGC or a thermal Bode AGC. In the SPAGC mode the DSIM-AF can be programmed to use either an analog or digital pilot signal from channels 52 to 116. If the pilot channel is lost, the DSIM-AF module will default into a thermal TGC mode and then return to the single pilot SPAGC mode automatically once the pilot channel has been restored. In the thermal AGC mode the DSIM-AF module can be programmed by the operator to have the upfront cable compensation settings at 9, 18, or 27 dB. The DSIM-AF incorporates a bi-colored blue and orange LED that indicates the different operational modes and settings of the DSIM-AF during setup and operation.

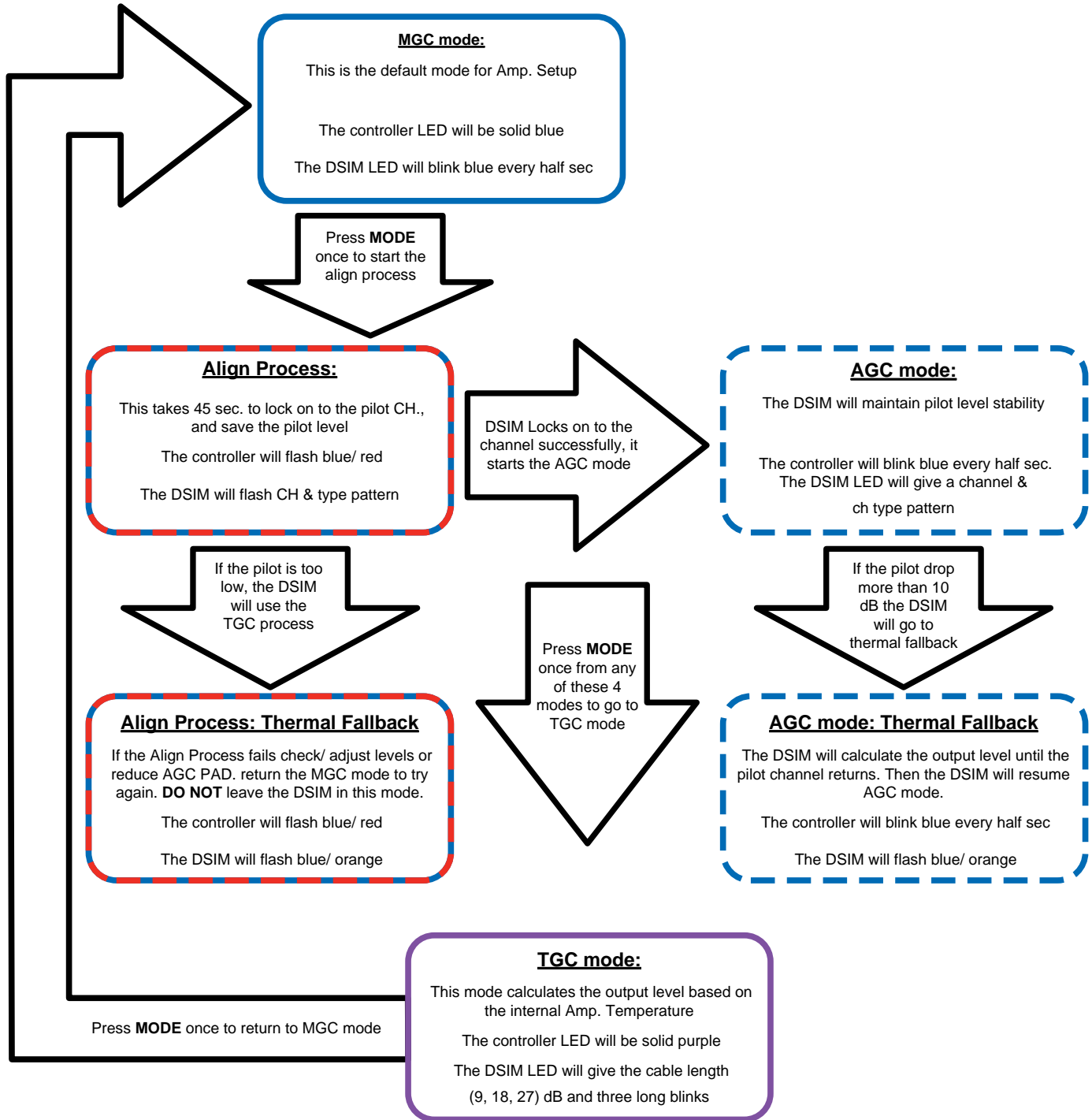
The DSIM controller is used to set the DSIM-AF module's pilot channel and to change into the different operational modes during the amplifier setup. The bi-colored blue and red LED indicator's blinking patterns will denote the current optional mode setting.

The DSIM-AF modules will be configured at the factory to have the default channel 88 digital (609.00 MHz) pilot channel programmed. The DSIM controller is used to set the DSIM-AF modules to the customer selected pilot channel. In the setup of the DSIM-AF module the pilot channel that is programmed into the controller is downloaded into the memory of the DSIM-AF module. The pilot channel setting in the DSIM-AF module can be changed in the future by simply using a controller with the new desired pilot channel programmed.

### 3. DSIM Mode Definitions

Operation Mode	Definition
MGC	<p>In the Manual Gain Control (MGC) mode the DSIM automatic gain control is turned off.</p> <p>The MGC mode is used during the setup of the station so that no gain adjustments are made when the levels and slopes are setup.</p>
AGC	<p>In Automatic Gain Control (AGC) mode will make gain adjustments to the station based on the level changes that occur on the pilot channel.</p>
TGC	<p>In Thermal Gain Control (TGC) mode the DSIM will make gain adjustments based on the changes in the internal temperature of the station. In the TGC mode there is a selection of 9, 18 or 27 dB for the amount of cable that is in front of the station. The dB of cable setting is used to more accurately predict actual losses that occur in the cable with the changes in the outside temperature.</p> <p><b>Note:</b> Thermal control operational mode should not be used in amplifiers that are pedestal mounted for underground networks. These units operate on the assumption that cable temperature will change at the same rate as amplifier temperature, while amplifiers mounted in pedestals will vary in temperature far greater than the underground cable temperature.</p>

# DSIM Mode Flow Chart



## 4. DSIM Controller Operation Instruction Guidelines

Switch	Function	Description
+	Increase	In MGC Mode, Click to increase RF output level (See Note 1)
		In AGC Mode, no function
		In TGC Mode, Click to increase cable length value
-	Decrease	In MGC Mode, Click to decrease RF output level (See Note 1)
		In AGC Mode, no function
		In TGC Mode, Click to decrease cable length value
Mode	Mode Change	In MGC mode, Click to go to Align Mode to load controller channel setting, DSIM module will then automatically switch to AGC mode
		In AGC Mode, Click to return to TGC Mode
		In TGC Mode, Click to go to MGC Mode

**Note 1:** Making adjustment to the output levels is only used when setting up the DSIM modules in temperatures bellow 32°F / 0°C or above 104°F / 40°C.

## 5. DSIM Controller Status LED Essentials

LED Blinking Pattern	Indications
Quick Blue / Red Blinks	DSIM controller to module syncing process - Occurs when controller is installed into the DSIM module.
	Aligning process: in progress
Steady on Blue	In MGC Mode
Series of Blue Blinks	In AGC Mode
Steady on Purple	In TGC Mode

## 6. DSIM-AF Module Status LED Essentials

### Operation Blinking Patterns for DSIM-AF Module

LED Blinking Pattern	Indications
Steady Repeating Blue Dashes	Manual Mode
Series of Blue Blinks	Pilot Channel Number - See tables in section 10 at the end of the guide for blinking sequences
Single Blue Long Dash Between Series of Blue Blinks	IRC Analog channel is set
2 Blue Long Dashes Between Series of Blue Blinks	Digital channel is set
3 Blue Long Dashes Between Series of Blue Blinks	TGC Mode - The default cable length setting for TGC mode is 27 dB of cable in front of the amplifier
Quick Blue / Orange Blinks	Pilot paste in progress - Wait or Pilot channel not found or lost



### LED Blinking Patterns

LED Blinking Pattern	Indications
Steady on Pink	24 volt input into DSIM-AF module is out of the operational range of 21.5 to 26.5 VDC. If this occurs, check for correct AC voltage input to the amplifier and for correct output DC voltage of internal power supply to the RF module
Steady Repeating Orange Blinks	Temperature in DSIM-AF module is too high / low (above 221°F/105°C or below -40°F/-40°C)
Quick Blue / Orange Blinks	Pilot Lost; DSIM-AF automatically switches to Thermal (TGC) mode until Pilot channel is restored

**Note:** The DSIM-AF LED blinks after the pilot channel count will be orange during programming and blue when in operation.

## 7. DSIM Interface Cable Assembly

To make the connection from the DSIM controller to the DSIM-AF AGC module use cable assembly P/N 240330-01. Note: The RF module is shown with faceplate cover removed for clarity.



DSIM interface cable assembly PN P/N 240330-01

## 8. Single Pilot AGC Setup

The DSIM controllers will come preset to have a desired pilot channel stored in the memory. The controller is used to set the DSIM-AF module to the desired pilot channel by downloading the pilot channel program into the DSIM-AF module's memory during setup.

1. Remove the RF module faceplate and install the DSIM-AF AGC module into the amplifier.
2. Turn the ALC switch to the on position.
3. Attach the cable and controller to the DSIM-AF, the controller light should be solid blue indicating manual mode (if not press mode button until it is).
4. Press the '+' button on the controller until the output levels stop increasing.
5. Then press the '-' button to decrease the output level @ 750MHz based on the outside temperature chart

<b>Above 100°F</b>	<b>-2dB</b>
<b>Between 80°F &amp; 100°F</b>	<b>-3dB</b>
<b>Between 60°F &amp; 80°F</b>	<b>-4dB</b>
<b>Between 40°F &amp; 60°F</b>	<b>-5dB</b>
<b>Between 20°F &amp; 40°F</b>	<b>-6dB</b>
<b>Below 20°F</b>	<b>-7dB</b>

6. Check and set amplifier station levels.
7. Replace the RF module cover.
8. Press mode button once. The controller light will flash blue and red for approximately 45 seconds.
9. When done the controller light will have a half second blue blink indicating that the DSIM-AF is in AGC mode.
10. Remove the DSIM-AF interface cable from the amplifier, and the DSIM-AF is all set.

## 9. LED Pilot Channel Blink Series Overview

Channel	IRC	DIGITAL	Set 1	Set 2	Set 3	Set 4
	MHz	MHz	Blue	Blue	Blue	Blue-Operation Orange-Programming
52	391.25	393.00	5-Dits	2-Dits		1 IRC / 2 DIGITAL Long dash
53	397.25	399.00	5-Dits	3-Dits		
54	403.25	405.00	5-Dits	4-Dits		
55	409.25	411.00	5-Dits	5-Dits	-	
56	415.25	417.00	5-Dits	6-Dits	-	
57	421.25	423.00	5-Dits	7-Dits	-	
58	427.25	429.00	5-Dits	8-Dits	-	
59	433.25	435.00	5-Dits	9-Dits	-	
60	439.25	441.00	6-Dits	1-Dash	-	
61	445.25	447.00	6-Dits	1-Dits	-	
62	451.25	453.00	6-Dits	2-Dits	-	
63	457.25	459.00	6-Dits	3-Dits	-	
64	463.25	465.00	6-Dits	4-Dits	-	
65	469.25	471.00	6-Dits	5-Dits	-	
66	475.25	477.00	6-Dits	6-Dits	-	
67	481.25	483.00	6-Dits	7-Dits	-	
68	487.25	489.00	6-Dits	8-Dits	-	
69	493.25	495.00	6-Dits	9-Dits	-	
70	499.25	501.00	7-Dits	1-Dash	-	
71	505.25	507.00	7-Dits	1-Dits	-	
72	511.25	513.00	7-Dits	2-Dits	-	

73	517.25	519.00	7-Dits	3-Dits	-	
Channel	IRC	DIGITAL	Set 1	Set 2	Set 3	Set 4
	MHz	MHz	Blue	Blue	Blue	Blue-Operation Orange-Programming
74	523.25	525.00	7-Dits	4-Dits		1 IRC / 2 DIGITAL Long dash
75	529.25	531.00	7-Dits	5-Dits		
76	535.25	537.00	7-Dits	6-Dits	-	
77	541.25	543.00	7-Dits	7-Dits	-	
78	547.25	549.00	7-Dits	8-Dits	-	
79	553.25	555.00	8-Dits	9-Dits	-	
80	559.25	561.00	8-Dits	1-Dash	-	
81	565.25	567.00	8-Dits	1-Dits	-	
82	571.25	573.00	8-Dits	2-Dits	-	
83	577.25	579.00	8-Dits	3-Dits	-	
84	583.25	585.00	8-Dits	4-Dits	-	
85	589.25	591.00	8-Dits	5-Dits	-	
86	595.25	597.00	8-Dits	6-Dits	-	
87	601.25	603.00	8-Dits	7-Dits	-	
88	607.25	609.00	8-Dits	8-Dits	-	
89	613.25	615.00	8-Dits	9-Dits	-	
90	619.25	621.00	9-Dits	1-Dash	-	
91	625.25	627.00	9-Dits	1-Dits	-	
92	631.25	633.00	9-Dits	2-Dits	-	
93	637.25	639.00	9-Dits	3-Dits	-	
94	643.25	645.00	9-Dits	4-Dits	-	
100	649.25	651.00	1-Dits	1-Dash	1-Dash	

Channel	IRC	DIGITAL	Set 1	Set 2	Set 3	Set 4
	MHz	MHz	Blue	Blue	Blue	Blue-Operation Orange-Programming
101	655.25	657.00	1-Dits	1-Dash	1-Dits	1 IRC / 2 DIGITAL Long dash
102	661.25	663.00	1-Dits	1-Dash	2-Dits	
103	667.25	669.00	1-Dits	1-Dash	3-Dits	
104	673.25	675.00	1-Dits	1-Dash	4-Dits	
105	679.25	681.00	1-Dits	1-Dash	5-Dits	
106	685.25	687.00	1-Dits	1-Dash	6-Dits	
107	691.25	693.00	1-Dits	1-Dash	7-Dits	
108	697.25	699.00	1-Dits	1-Dash	8-Dits	
109	703.25	705.00	1-Dits	1-Dash	9-Dits	
110	709.25	711.00	1-Dits	1-Dits	1-Dash	
111	715.25	717.00	1-Dits	1-Dits	1-Dits	
112	721.25	723.00	1-Dits	1-Dits	2-Dits	
113	727.25	729.00	1-Dits	1-Dits	3-Dits	
114	733.25	735.00	1-Dits	1-Dits	4-Dits	
115	739.25	741.00	1-Dits	1-Dits	5-Dits	
116	745.25	747.00	1-Dits	1-Dits	6-Dits	

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